Advanced Quinta Usage

Things you probably know:

- Accessing the frontal machine

outside:~$ ssh **user**@XX.XX.XX.XX

- Verifying machines' status

r11:~$ quinta status -a

- Choosing deployment images

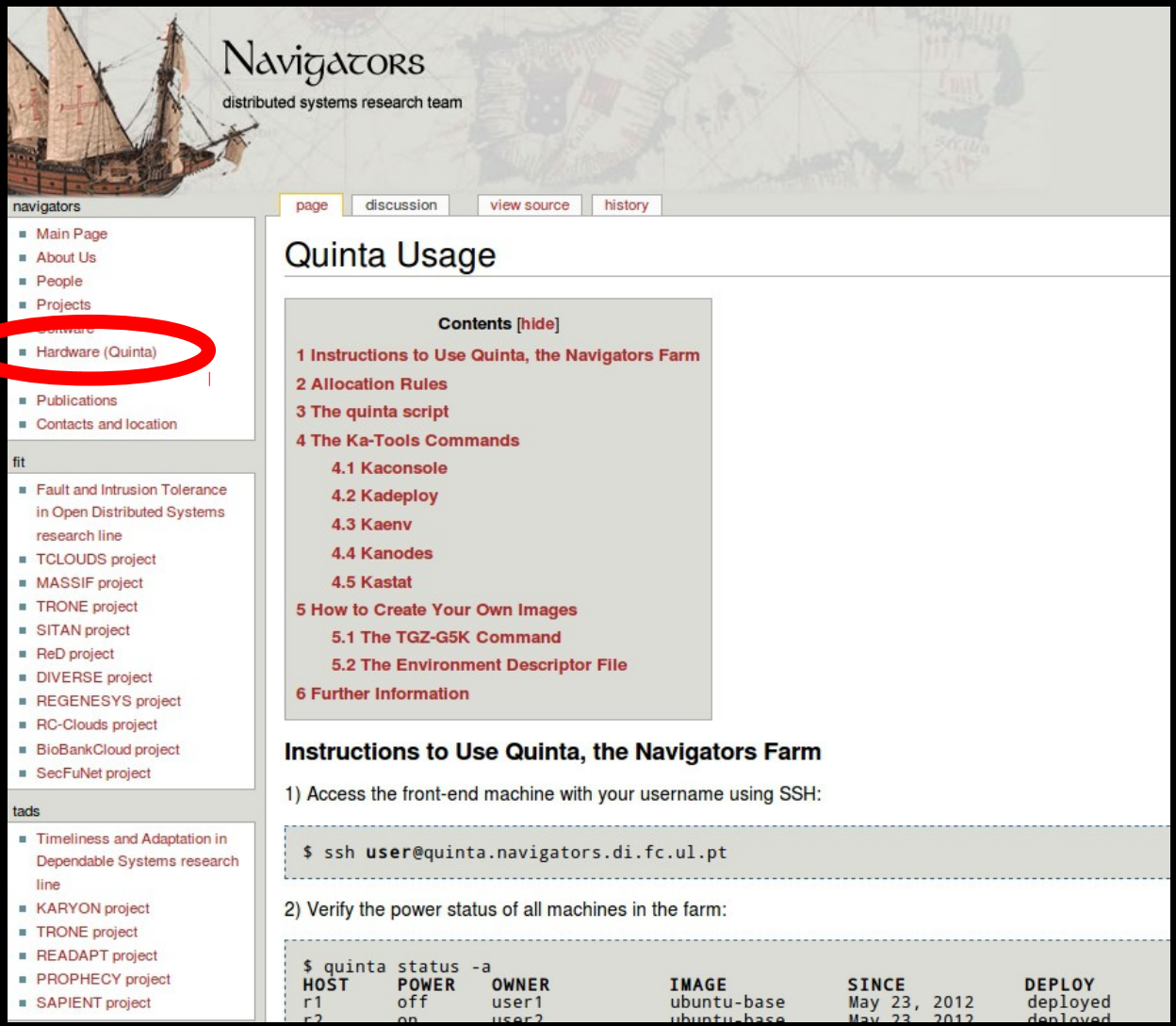
r11:~$ kaenv3 -l

- Deploying nodes

r11:~$ kadeploy3 -e **env-name** -f **nodes_file**

If you still don't know it:

- Quinta usage tutorial



Next Steps:

1 – Improving access
2 - Sharing nodes
3 – Improving deployments
4 – Using NFS

1 – Improving access:

- Reducing command line

outside:~$ ssh **username**@XX.XX.XX.XX

outside:~$ #Create a ~/.ssh/config file:

```
Host quinta
    User username
    HostName quinta.navigators.di.fc.ul.pt
    StrictHostKeyChecking no
```

outside:~$ ssh quinta

1 – Improving access:

- Accessing nodes directly

```
outside:~$ ssh quinta
r11:~$ ssh root@s9
s9:~$

outside:~$ #Add a rule to the ~/.ssh/config file:
Host *.quinta
        User root
        ProxyCommand ssh username@quinta.navigators.di.fc.ul.pt "nc -q
10 \$(basename %h .quinta) %p"
        StrictHostKeyChecking no

outside:~$ ssh s9.quinta
s9:~$
```

1 – Improving access:

- “Passwordless” root in nodes

```
outside:~$ ssh s9.quinta
root@s9.quinta's password: **********
s9:~$ logout

outside:~$ ssh-copy-id -i ~/.ssh/id_rsa.pub s9.quinta
root@s9.quinta's password: **********
s9:~$ logout
outside:~$ #same as scp + cat id.pub >> auth_keys

outside:~$ ssh s9.quinta
s9:~$ logout
```

1 – Improving access:

- “Passwordless” root in nodes 2nd case

```
r11:~$ kadeploy3 -e img-name -f nodes-file
    -k ~/.ssh/id_rsa.pub

r11:~$ ssh root@s9
s9:~$ logout

r11:~$ #It will use the public key from your user in R11
```

2 – Sharing nodes:

```
r11:~$ quinta status s12
HOST   POWER    OWNER      IMAGE           SINCE          DEPLOY
s12    on       user1      ubuntu-12.04    Oct 28, 2013   deployed

r11:~$ quinta update -u user2 s12

r11:~$ quinta status s12
HOST   POWER    OWNER      IMAGE           SINCE          DEPLOY
s12    on       user2      ubuntu-12.04    Oct 30, 2013   deployed
```

Problems:

- user2 needs to ask user1 every time he wants to use the node

- Process from user1 can still be running

(should we reboot the machine with the update?)

3 – Improving deployments:

- Creating a new image

```
user@r11:~$ kadeploy3 -e ubuntu-12.04 -m r5
user@r11:~$ ssh root@r5
root@r5:~$ passwd root
root@r5:~$ apt-get install foo
root@r5:~$ echo “” > /etc/udev/rules.d/70-persistent-net.rules
root@r5:~$ tgz-g5k user@r11:~/my-ubuntu-foo.tgz
root@r5:~$ exit
```

3 – Improving deployments:

- Registering a new image

user@r11:~$ vim myDescriptor

```
name : my-ubuntu-foo
version : 1
description : Ubuntu Lucid Lynx image with Java.
author : User (user@lasige.di.fc.ul.pt)
tarball : /home/users/user/my-ubuntu-foo.tgz|tgz
postinstall : /home/deploy/postinstalls/post4all.tgz|tgz|traitement.ash
kernel : /boot/vmlinuz-2.6.32-21-server
initrd : /boot/initrd.img-2.6.32-21-server
fdisktype : 83
filesystem : ext3
environment_kind : linux
visibility : shared
```

user@r11:~$ kaenv3 -a myDescriptor

```
Computing the md5sum for /home/users/user/my-ubuntu-foo.tgz
Computing the md5sum for /home/deploy/postinstalls/post4all.tgz
```

user@r11:~$ kadeploy3 -e my-ubuntu-foo -f nodes-file

3 – Improving deployments:

- Adding public key:

user@r11:~$ kadeploy3 -e my-ubuntu-foo -f nodes-file **-k ~/.ssh/id_rsa.pub**

3 – Improving deployments:

- Running a script automatically:

user@r11:~$ kadeploy3 -e my-ubuntu-foo -f nodes-file -k ~/.ssh/id_rsa.pub **-s myScript.sh**

Example of automatic tasks:

- Start the service
- Start clients and store results in a local file
- Copy results to R11 (for persistence)
- Execute the previous three steps indefinitely until I decide to shut down the nodes
- Start a test: simply deploy a new cluster (no more software installation and file retrieval)
- Sharing: simply turn off nodes

3 – Improving deployments:

- Best practices:

- Deploy a basic image
- Install your software
- Create a new image
- Register this image
- Create a post-deployment script
- Deploy passing -k and -s arguments
- Turn off machines after running the experiments

- Example:

- Script to execute a Hadoop workload in Grid'5000:
https://www.grid5000.fr/mediawiki/index.php/Run_Hadoop_On_Grid%275000#Script_config.sh

4 – Using NFS:

user@r11:~$ kadeploy3 -e ubuntu-12.04-nfs -m r5

user@r11:~$ ssh **user**@r5

user@r5:~$ ls
#Your files from R11 appear in your home (~user) at r5

- Best practices:

- Deploy a NFS image
- Copy your input files to a local folder (e.g.: /opt/*)
- Run your software with the copied files
- Store output in a local file
- At the end of your experiment, copy again to NFS folder (~user)